

What is claimed is:

1. A stable plastid transformation and expression vector which comprises an expression cassette comprising, as operably linked components in the 5' to the 3' direction of translation, a promoter operative in said plastid, a selectable marker sequence, a heterologous DNA sequence coding for cytotoxic antimicrobial peptide (AMP), transcription termination functional in said plastid, and flanking each side of the expression cassette, flanking DNA sequences which are homologous to a DNA sequence of the target plastid genome, whereby stable integration of the heterologous coding sequence into the plastid genome of the target plant is facilitated through homologous recombination of the flanking sequence with the homologous sequences in the target plastid genome.
2. A vector of claim 1, wherein the plastid is selected from the group consisting of chloroplasts, chromoplasts, amyloplasts, proplastids, leucoplasts and etioplasts.
3. A vector of claim 1, wherein the antimicrobial peptide is selected from the groups of defensins, PGLA (frog skin), cecropins, apidaecins, melittin, bombinin and magainin.
4. A vector of claim 3, wherein the antimicrobial peptide is magainin I or II.
5. A vector of claim 1, wherein the selectable marker sequence is an antibiotic-free selectable marker.
6. A universal integration and expression vector of claim 1 competent for stably transforming a plastid genome of different plant species wherein the flanking DNA sequences are homologous to a spacer sequence of the target plastid genome and the sequence is conserved in the plastid genome of different plant species.
7. A stably transformed plant which comprises plastid stably transformed with the vector of claims 1, 2, 3, 4, 5 or 6 or the progeny thereof, including seeds.
8. A stably transformed plant of claim 7 which is a solanaceous plant.
9. A stably transformed plant of claim 7 which is a monocotyledonous or dicotyledonous plant.
10. A stably transformed plant of claim 9 which is maize, rice, grass, rye, barley, oat, wheat, soybean, peanut, grape, potato, sweet potato, pea, canola, tobacco, tomato or cotton.
11. A stably transformed plant of claim 7 which is edible for mammals and humans.
12. A stably transformed plant of claim 7 in which all the chloroplasts are uniformly transformed.
13. A stably transformed plant of claim 7 in which the transformed plastid of the plants including subsequent generations are capable of enhanced levels of expression.

14. A stably transformed plant of claim 7 in which transgenic plants germinated in the absence of antibiotic selectable marker sequence, like spectinomycin.

15. A method for stably transforming a target plant to control a phytopathogenic bacteria which comprises introducing an integration and expression vector of claims 1, 2, 3, 4, 5 or 6 into a plastid genome of the target plant, and allowing the transformed plant to grow.

16. A vector of any one of claims 1 – 14, wherein the antimicrobial peptide is a cationic amphiphilic alpha-helix molecule which has affinity for negatively charged phospholipids in the outer membrane of the target bacteria and which is functional to form aggregates that disrupt and lyse the bacterial membrane of the target microbe, and in the prevention of the spread of infection by the bacteria.

17. A vector of any one of claims 1-14, wherein said vector further comprises a ribosome binding site (rbs) and a 5' untranslated region (5'UTR).

18. A method of claim 15, wherein said vector further comprises a ribosome binding site (rbs) and a 5' untranslated region (5'UTR).